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the issuing of the Official Action it could not have been considered by the Examiner. Nevertheless, the Examiner is respectfully requested to consider the same upon consideration of the herein contained response.

Additionally, Applicant notes that while the above noted Information Disclosure Statement was filed after the issuance of a Final Rejection, the appropriate fee was apparently not enclosed. Accordingly, Applicant submits the appropriate fee together with the present response and respectfully requests consideration of the documents cited therein. As noted in the Supplemental Information Disclosure Statement, the documents cited therein were cited in a Canadian Office Action on September 25, 2002. Accordingly, since the fee is being submitted within three months of the issuance of the above noted Canadian Office Action, it is respectfully submitted that consideration of the documents cited therein is appropriate and is thus respectfully requested.

In the outstanding Official Action, the Examiner rejected claims 1, 3-6, 15, 17-19 and 20 under 35 U.S.C. § 103(a) as being unpatentable over FORSSEN et al. (U.S. Patent No. 5,615,409) in view of DUNBRIDGE et al. (U.S. Patent No. 5,815,116).

The Examiner further rejected claims 12-14 and 16 under 35 U.S.C. § 103 as unpatentable over FORSSEN et al. in view of DUNBRIDGE et al. and further in view of SUZUKI (U.S. Patent No. 5,978,657). Claims 7 and 8 were rejected under 35 U.S.C. § 103 as unpatentable over FORSSEN et al. in view of DUNBRIDGE et al. and further in view of WARD (U.S. Patent No. 6,167,286).

Applicant respectfully traverses each of the above rejections and submits that they are inappropriate with respect to the combination of features recited in Applicant's claims. Accordingly, Applicant respectfully requests reconsideration and withdrawal of each of the outstanding rejections together with an indication of the allowability of all the claims pending in the present application. Such action is respectfully requested and is now believed to be appropriate and proper.

Initially, Applicant notes that neither in the present Official Action nor in the previous Official Action did the Examiner particularly identify the FORSSEN et al. reference relied upon. Applicant further notes that two FORSSEN et al. references are cited on the PTO-892 Form attached to the Official Action of January 23, 2002. Upon review of both of these documents it appears that FORSSEN et al., U.S. Patent No. 5,615,409 is somewhat more relevant to the claims in the present application (although the claims are submitted to be patentable thereover). Applicant's remarks, both in the response of June 21, 2002 as well in the present response are thus accordingly directed to FORSSEN et al., U.S. Patent No. 5,615,409. Nevertheless, the Examiner is respectfully requested to indicate on the record which FORSSEN et al. reference is being relied upon in the rejection so as to clarify the record for appeal in the present application.

Regarding the disclosed invention, Applicant notes that generally speaking, in radio communications, it sometimes occurs that a base station transmits signals with a directivity to a plurality of mobile stations. Accordingly, it is necessary to accurately determine whether low reception power in a particular mobile station is caused by improper directivity of the

signal by or low transmission power. It is further necessary to control the transmission power and directivity accordingly, based on the cause of the low reception power.

According to the teachings of the present invention, a mechanism for determining a cause of low reception power in a mobile station is provided. In other words, the present invention enables accurate determination of the reason for low reception power in a mobile station. In particular, according to the disclosed features of the present invention, a determination of a cause of low reception power in a mobile station is based on a difference between a transmission power ratio and a reception power ratio of signals in a mobile station. The transmission power ratio is based upon a first signal with a narrow directivity with respect to a second signal having a wide directivity.

In terms of claim 1, the present invention relates to a base station apparatus having a down link transmission section which transmits a first signal and a second signal with a directivity wider than that of the first signal and a reception section that receives a reception power ratio of the first signal to the second signal measured in the mobile station apparatus. The present invention also includes a determining section that determines whether the directivity of the first signal should be changed based on a difference between the transmission power ratio of the first signal to the second signal and the reception power ratio. Further, the present invention includes a directivity control section that changes the directivity of the first signal based upon a result of the determination by the determination section.

Thus, the determination section, in making a determination regarding a directivity change, requires a difference between a transmission power ratio and a reception power ratio. It is respectfully submitted that at least these features, as recited in claim 1, are not taught, disclosed nor rendered obvious by any of the references cited by the Examiner and particularly are absent from the combination proposed by the Examiner of FORSSEN et al. in view of DUNBRIDGE et al.

FORSSEN et al. relates to a method and apparatus for transmitting and receiving signals using two classes of channels. The base station transmits signals to the mobile station in a first channel class having a wide antenna lobe. The position of a mobile station is then determined from signals received at the base station from the mobile station. After the position of the mobile station has been determined, the base station can transmit signals to and receive signals from the mobile station in a second channel class having a narrow antenna lobe.

DUNBRIDGE et al. relates to a communication system that transmits a large number of highly directed personalized communication beams throughout an original geographic cell of the cellular communication system. The system utilizes a phased array antenna positioned at a center of the cell in conjunction with a spread spectrum communication system which includes code division multiple access techniques for increasing user capacity. Each of the communication beams represents user signals assigned to specific users within the original geographic cell and are adjustable in the users direction.

In the outstanding rejection, the Examiner asserts that FORSSEN et al. disclose a determination section but admits that FORSSEN et al. does not disclose a reception section that receives reception power signal or a determination section that determines whether directivity should be changed based upon the difference between a transmission power ratio and a reception power ratio.

The Examiner however relies upon DUNBRIDGE et al. for these teachings. In particular, the Examiner asserts that at col. 6, lines 23-36, DUNBRIDGE et al. disclose a reception section that receives reception power ratio signal and a determination section that determines whether the directivity should be changed based upon a difference between a transmission power ratio and a reception power ratio. It is respectfully submitted that the Examiner is incorrect and that DUNBRIDGE et al. does not disclose the above noted features.

Applicant notes that the paragraph noted by the Examiner in DUNBRIDGE et al. relates to tracking assemblies that track each of the users within the cell according to "user signal power ratios" with respect to adjacent communication beams. DUNBRIDGE et al. however contains no disclosure relating to the "transmission power ratio" which is explicitly recited in Applicant's claim as being utilized by the determining section to determine whether directivity should be changed.

Accordingly, it is respectfully submitted that based at least upon this shortcoming the combination of FORSSEN et al. and DUNBRIDGE et al. cannot render obvious the combination of features recited in Applicant's claim 1. Applicant notes that the recited

determination section utilizes both the transmission power ratio and the reception power ratio and that whether or not it is necessary to change the directivity of the signal is based upon the difference between the transmission power ratio and the reception power ratio. Accordingly, the lack of disclosure in DUNBRIDGE et al. regarding a transmission power ratio renders the same incapable of providing a determination section as recited in Applicant's claim 1. Accordingly, the disclosure of DUNBRIDGE et al. cannot overcome the admitted deficiencies of FORSSEN et al.

While DUNBRIDGE et al., in the paragraph cited by the Examiner, does mention transmitting beam forming networks and receiving beam forming networks, DUNBRIDGE et al. does not disclose the use of a "transmission power ratio" in determining whether or not the directivity should be changed.

Applicant's claim 15 is also clearly patentable over the combination of FORSSEN et al. and DUNBRIDGE et al. In this regard, Applicant notes that claim 15 recites a communication method wherein a base station apparatus transmits a first signal having a directivity to a mobile station apparatus and a second signal to an apparatus other than the mobile station apparatus with a directivity wider than the directivity of the first signal. The mobile station apparatus measures the reception power of the first signal and the second signal and transmits the measurement results to the base station apparatus. The base station apparatus measures a transmission power ratio (a ratio of the transmission power of the first signal to the transmission power of the second signal) measures a reception power ratio (a ratio of the reception power of the first signal to a reception power of the second signal)

transmitted from the mobile station apparatus and determines whether the directivity of the first signal should be changed based on the difference between the transmission power ratio and the reception power ratio.

The communication method of claim 15 changes the directivity of the first signal based on the determination result which is based on a difference between the transmission power ratio and the reception power ratio.

At least because neither FORSSEN et al. nor DUNBRIDGE et al. disclose determining whether the directivity signal should be changed based on inter alia, transmission power ratio, it is respectfully submitted that the combination of DUNBRIDGE et al. and FORSSEN et al. cannot render claim 15 unpatentable.

Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejections of all of claims 1 and 3-20 in due course.

In addition, Applicant respectfully submits that there is no basis or motivation for the combination of teachings of DUNBRIDGE et al. and FORSSEN et al. The Examiner's stated reason "for a reliable signal quality" is a general goal of every communication system and there is no indication that combining the teachings of DUNBRIDGE et al. and FORSSEN et al. would in fact provide such a system. Moreover, there is no evidence that modifying the system of FORSSEN et al. with the teachings of DUNBRIDGE et al. will achieve such an improved signal quality, based on the disclosure of these two references. Accordingly, for this yet additional reason it is respectfully submitted that the claims in the present application are clearly patentable over the references cited by the Examiner.

Regarding the various secondary references cited against several of the dependent claims, since it is respectfully submitted that since SUZUKI and WARD references do not overcome the shortcomings and deficiencies of the combination of FORSSEN et al. and DUNBRIDGE et al., they cannot render any of the claims in the present application unpatentable.

Applicant notes that the Examiner has made the present rejection final although a new reference was used and has asserted that the new ground of rejection was necessitated by Applicant's amendment. However, Applicant respectfully submits that the Examiner's assertion is incorrect at least with respect to claim 15. As can be seen by reference to the marked-up copy of claim 15 attached to the previously filed response of June 21, 2002, the changes to claim 15 have not incorporated any additional features therein (that would necessitate citation of a new reference) but have merely clarified the features of the claim. Accordingly, it is respectfully submitted that the finality of the Official Action of September 6, 2002 is inappropriate and should be withdrawn.

As set forth above, Applicant notes with appreciation the Examiner's indication that claims 9-11 contain allowable subject matter and would be allowable if rewritten into independent form including all of the limitations of base claim and any intervening claims. Applicant has however respectfully declined to rewrite these claims into independent form based on the clear basis for the patentability of the independent claim set forth above.

Applicant further notes the Examiner's statement of reasons for the indication of allowable subject matter. In this regard, while Applicant does not disagree with the various

features enumerated by the Examiner, Applicant further notes that each of the claims in the present application recites and defines a particular combination of features and that the patentability of each of the claims is thus based upon the particular totality of features recited therein. Accordingly, patentability should not be limited to those features noted by the Examiner.

SUMMARY AND CONCLUSION

Applicant has made a sincere effort to place the present application in condition for allowance and believes that he has now done so. Applicant has acknowledged consideration of the Information Disclosure Statement filed on January 10, 2002 and has requested consideration of the references cited in the Information Disclosure Statement filed in the present application on October 22, 2002. Applicant has further traversed the finality of the above noted Official Action and provided reasons for its prematurity.

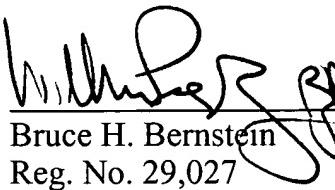
Applicant has discussed the features of Applicant's invention and has pointed out the significant and substantial shortcomings of the references cited with respect thereto. Applicant has discussed the disclosures of each of the references and has pointed out particular recited features of Applicant's invention not disclosed therein. Accordingly, Applicant has provided a clear evidentiary basis supporting the patentability of all the claims in the present application and respectfully requests an indication to such effect in due course.

Applicant has further discussed the Examiner's statement of reasons for allowance and has provided comments with respect thereto.

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Should the Examiner have any questions or comments regarding this Response, or the present application, the Examiner is invited to contact the undersigned at the below-listed telephone number.

Respectfully submitted,  
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